



**TECHNICAL STANDARDS
FOR
ELECTRONIC GAMING MACHINES –
ELECTRONIC TABLE GAMES
APPENDIX
(SINGAPORE)**

Version 1.1

With effect from 23 June 2010

Total number of pages: 9 (inclusive of cover page)

Technical Standards for Electronic Gaming Machines – Electronic Table Games
Appendix (Singapore)

No part of this document shall be reproduced, in any form or by means, without permission in writing from the Casino Regulatory Authority of Singapore (the “Authority”).

Whilst every effort has been made to ensure that the information contained in this document is accurate as at the date of issue, the Authority makes no warranty or representation whatsoever with regards to the information in this document. The Authority assumes no responsibility or liability for any consequences (financial or otherwise) suffered directly or indirectly by persons who have entered into commercial activities upon reliance on any information in this document.

The information in this document is subject to change from time to time to adapt to the continual development and evolution of the gaming industry in Singapore. The Authority reserves the right to change its policies and to amend, modify or supplement any information in this document.

This document does not in any way bind the Authority to grant any approval for or exemption from any matter for which approval is required under any written law in Singapore.

This document shall not affect any regulatory requirements of any other competent authority in Singapore.

Persons who may be in doubt about how the information in this document may affect them or their commercial activities are advised to seek independent legal advice or any other professional advice they may deem appropriate.

TABLE OF CONTENTS

PREFACE4

1. INTRODUCTION6

1.1 Purpose.....6

1.2 Scope6

1.3 Terminology6

1.4 Testing7

1.5 Consistency of Interpretation7

2. TECHNICAL REQUIREMENTS8

2.1 Applicability of EGM Standards.....8

2.2 Live Game Correlation8

2.3 System Clock8

2.4 Reporting Requirements8

2.5 Access Control9

Technical Standards for Electronic Gaming Machines – Electronic Table Games
Appendix (Singapore)

Preface

The purpose of this document is to establish the requirements for the design and operation of Electronic Table Games in the gaming industry in Singapore and to guide testing and certification bodies on the areas for technical compliance on such equipment.

An Electronic Table Game means a gaming machine used for the purpose of playing a game traditionally played at tables, and includes any electronic device through which bets may be placed on a table game. Technically, the Electronic Table Game would comprise a computer or server and any related hardware, software or other devices that are used to conduct gaming of an existing live table game in a full or semi-automated manner, including but not limited to the automated collection of bets and payout of winnings. Please note that a gaming product that does not automate the process of collecting bets and paying out winnings (i.e. a product that still requires a live dealer to conduct wagering instrument transactions) is not considered an Electronic Table Game and thus is not subject to these technical standards.

As an Electronic Table Game is also a gaming machine, every Electronic Table Game is also subject to the Technical Standards for Electronic Gaming Machines (Singapore)

The intent of this document is to ensure that gaming on Electronic Table Games occur in a manner that is:-

- a. Honest;
- b. Secure;
- c. Reliable; and
- d. Auditable.

It is not the intent of this document to:-

- a. Mandate a single solution or method to realise an objective;
- b. Limit technology application to gaming equipment;
- c. Limit creativity and variety of choice;
- d. Limit any supplier or manufacturer of equipment; and
- e. Preclude research and development into new technologies or innovative ideas.

As far as possible, this document specifies what the minimum technical standards for Electronic Table Games are instead of how these standards should be met, and does not mandate a particular solution or method as the means to realise these standards.

Casino Regulatory Authority of Singapore (the “Authority”) is the regulatory authority that supervises and regulates the activities of casinos in Singapore. Casino operators are required to be licensed by law and the gaming equipment deployed on the casino floor must comply with these technical standards as part of their licensing requirements.

Where applicable, the provisions in the Casino Control Act (Cap. 33A) and its subsidiary legislation shall take precedence over these technical standards.

**Technical Standards for Electronic Gaming Machines – Electronic Table Games
Appendix (Singapore)**

This document would be reviewed on an ongoing basis to take into account the evolution of technologies utilised in Electronic Table Games and the development of other casino related technologies that may require technical regulation.

Comments on this document can be forwarded to:-

Casino Regulatory Authority of Singapore
Gaming Technology and ICT Systems Division
460 Alexandra Road, #12-01
Singapore 119963
Website: <http://www.cra.gov.sg>

1. INTRODUCTION

1.1 Purpose

1.1.1 The purposes of these technical standards are to:-

- a. Create technical standards that would ensure that the operation of Electronic Table Games in casinos in Singapore is secure, reliable, auditable and operated appropriately;
- b. Establish the minimum integrity standards for Electronic Table Games;
- c. Construct technical standards that are technology neutral wherever feasible; and
- d. Construct technical standards that do not specify or approve any particular method or algorithm. The intent being to allow a wide range of methods to be used to conform to these standards as long as the methods are secure, reliable and consistent with the best practices of the day for the relevant technologies.

1.2 Scope

1.2.1 The scope of these technical standards covers the minimum standards required in the operation of an Electronic Table Game so that security, reliability and integrity of gaming equipment is achieved.

1.2.2 These technical standards should be read in conjunction with the Technical Standards for Electronic Gaming Machines (Singapore) as similar requirements will be imposed on Electronic Table Game components that are found in gaming machines.

1.3 Terminology

1.3.1 The following terminology used in this document is to be interpreted as follows:-

- a. Shall: The guideline defined is a mandatory requirement, and therefore must be complied with;
- b. Should: The guideline defined is a recommended requirement. Non-compliance shall be documented and approved by the Authority. Where appropriate, compensating controls shall be implemented; and
- c. May: The guideline defined is an optional requirement. The implementation of this guideline is determined by the operator's environmental requirements.

Technical Standards for Electronic Gaming Machines – Electronic Table Games
Appendix (Singapore)

1.4 Testing

1.4.1 Testing of Electronic Table Games by recognised testing laboratories shall be aimed at determining compliance with these technical standards. Areas of non-compliance shall be reported in the test/certification report. Where, in the opinion of the testing/certification laboratory, these technical standards are insufficient, inappropriate or not pertinent to the design and operation of Electronic Table Games, the laboratory shall seek direction and further clarification from the Authority before proceeding to testing/certification.

1.5 Consistency of Interpretation

1.5.1 The Authority recognises that these technical standards may be subject to different interpretation by manufacturers, casino operators and testing/certification laboratories. As such, any feedback interpretation of any provision of these technical standards should be directed to the Authority for clarification.

2. TECHNICAL REQUIREMENTS

2.1 Applicability of EGM Standards

- 2.1.1 Electronic Table Games (ETGs) shall comply with the requirements stipulated in the Technical Standards for Electronic Gaming Machines (Singapore) (EGM Standards) wherever applicable.
- 2.1.2 Section 2.11 Tilt Conditions of the EGM Standards shall not apply to ETGs. Instead, ETGs shall display a signal visible to the surveillance department and become disabled whenever:-
- a. A door or cabinet required to secure the ETG or any of its components is open;
 - b. There is a malfunction in the operation of the ETG or any of its components;
or
 - c. If applicable, a printer or currency jam occurs.
- 2.1.3 If the integrity of the game in play is not compromised, it is permissible for the ETG to disable just the terminals affected by the errors stipulated in section 2.1.2 and allow gaming to continue on unaffected terminals.

2.2 Live Game Correlation

- 2.2.1 Unless otherwise denoted in the artwork, where the ETG plays a game that is recognizable as an existing table game the same probabilities associated with the live game shall be evident in the simulated game.

2.3 System Clock

- 2.3.1 The ETG shall maintain an internal clock that accurately reflects the current time (in hours, minutes and seconds) and date that shall be used to provide for the following:-
- a. Time stamping of significant events;
 - b. Reference clock for reporting; and
 - c. Time stamping of configuration changes.
- 2.3.2 If multiple clocks are supported, the ETG shall be capable of maintaining and synchronizing the time for all clocks in each system component within accuracy of sixty (60) seconds so as to ensure that time stamping of all events and data is correct.

2.4 Reporting Requirements

- 2.4.1 Events and metering information shall be stored on the ETG in a database and accounting reports are subsequently generated by querying the stored information.

Technical Standards for Electronic Gaming Machines – Electronic Table Games
Appendix (Singapore)

Reports will be generated from time to time and on a schedule as requested by the CRA.

- 2.4.2 The ETG shall be able to create all the financial reconciliation and variance reports as well as all Internal Controls required reports as stipulated in the CRA’s “Casino Reporting Requirements for Operators” document.

2.5 Access Control

- 2.5.1 Role Based Access Control whereby users are only allowed access to programs and menu items related to their job functions shall be supported.

- 2.5.2 A record of all privileges allocated to user accounts shall be maintained.

- 2.5.3 All passwords, PINs, biometrics or other electronic forms of information, if used as part of the authentication method, shall be encrypted in storage.

- 2.5.4 There shall be a non-alterable audit trail of all user logon activities.